

being devoted to such matters as soil, manure, planting, pruning, propagating, and exhibiting. For the cultivator the book covers all the ground, and Mr. Melliar's instructions are as clear, as thorough, and as trustworthy as any budding "Rosarian" could desire. There are already plenty of books about the rose, of which as much as this can be said, but there is still room for Mr. Melliar's. He writes mainly for the amateur grower of roses, and strongly recommends his hobby to the country parsons who are, he says, "all so poor, and likely to be poorer still." The delights of the rose-grower are only experienced when he himself does all the work entailed in the production of plants from cuttings, buds or seeds, to the exhibition flowers. The genuineness of Mr. Melliar's love for his hobby is seen in the following extract from his book :—

"But if it was you alone who had found, chosen, and grubbed out the [briar] stock from the hedge, or cut, prepared, planted, and transplanted the briar or manetti cutting—if no hand but yours had budded it, cared for it in all stages, and finally cut and shown the Rose—then, when perchance it is declared on all hands to be the finest specimen of the variety ever shown, it must be an additional pleasure to know that it is your Rose indeed, for that, as far as all human aid is concerned, you made it yourself."

If the book has a fault, it is to be found in this treating of the rose solely as a flower to be set on a tray at an exhibition and win a prize. Mr. Melliar has something of the narrowness of view of the old florist, for he sees little beauty in roses which are not likely to win prizes. He devotes thirty pages to instructions on exhibiting the flowers. This chapter is interesting as showing how much care and self-sacrifice are necessary to success in the exhibition tent, the paper covers to protect the buds from rain, wind, and sun, and the precautions necessary even when the flowers are ready to pack in their prepared mossy beds in boxes. In one very dry season, he says, his mossed boxes had been kept in the shade and duly watered, with the result that two huge slugs, each as big as his thumb, concealed themselves in the moss, and during the journey to the Crystal Palace regaled themselves on the roses!

Mr. Melliar speaks of several varieties of rose that show deterioration since they were first introduced, or "sent out," as the raisers express it. These fine varieties of rose are always propagated from grafts or cuttings, and deterioration is therefore unlikely. The same statement has been made with regard to apples, pears, and other fruits, which are multiplied in the same way as roses, but they have never been substantiated.

Until within the last thirty years or so, all the best garden roses were raised by continental growers, the belief being that they could not be produced in England. The same belief prevailed until recently with regard to chrysanthemums. It is therefore a pleasant surprise to see that of the 144 varieties of the Hybrid Perpetual section of roses, selected by Mr. Melliar as the choicest and best, no less than sixty of them were raised in England, and that the two best H.P. roses known, viz. "Her Majesty" and "Mrs. J. Laing," were raised by the late Mr. Bennett in Surrey. To these I would add a third, namely, "Grace Darling," also raised by Mr. Bennett, and

which, although not an exhibition rose, is yet one of the most beautiful of all in the garden. Its only rival is "Gloire de Dijon," raised in France forty years ago, and of which Dean Hole, prince of rosarians said, "Were I condemned to have but one rose for the rest of my life, I should ask, before leaving the dock, to be presented with a strong plant of 'Gloire de Dijon.'"

A book which deals chiefly with exhibition roses can scarcely be considered to justify its title, "The Book of the Rose," because to all but a very small section of gardeners the rose appeals with greatest force when seen as a naturally grown bush in the garden. The close pruning and other rigorous methods of the grower-exhibitor are suggestive of ear-cropping for dogs, and comb-cutting for cocks, disfiguring, for a special purpose, otherwise beautiful objects. Mr. Melliar has very little to say for the many beautiful single-flowered roses which are now coming rapidly into favour with gardeners, and whose flowers are often as lovely as the highest floral art could wish. Many of the perfect exhibition roses are just about as attractive in form and colour as a red-cabbage. The hybrids raised by Lord Penzance from the sweetbriar crossed with garden roses, are exceedingly beautiful, so too are the forms of the Japanese *Rosa rugosa*, *R. multiflora*, *R. bracteata*, *R. indica*, &c.

It is becoming a too common practice amongst professional gardeners to set about crossing beautiful species of plants, roses included, with a view to doubling or otherwise altering the form, or "improving" the colour of the flowers, to satisfy some absurd ideal, the consequence often being a considerable loss from the point of view of true art. We owe the garden roses of the present time to the breeders of florists' flowers, and are duly thankful. At the same time we would prefer to keep the best of the single-flowered roses just as they are. Mr. Melliar does not agree with those who look upon the rose as a decorative plant for the garden, but only as a means whereby he may obtain glorious roses. For me, the best tray of exhibition roses ever produced has infinitely less charm than a bed of yellow Banksian roses, or even a tangled mass of sweetbriar when covered with flowers. However, Mr. Melliar's book will teach any one how to grow good rose flowers, and there are thousands who would find pleasure in rose-growing by reading and following his directions.

W.

OUR BOOK SHELF.

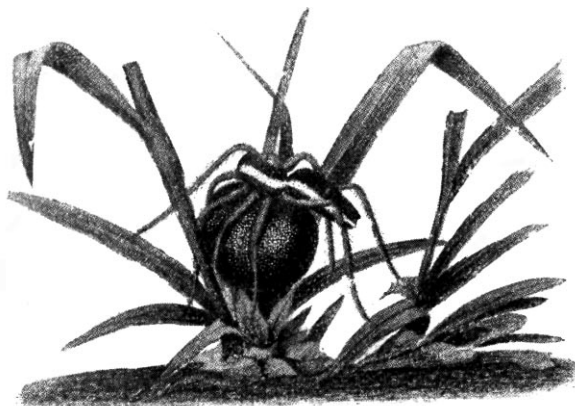
L'Industrie des Araneina. By Woldemar Wagner. (St. Petersburg: L'Académie Impériale des Sciences, 1894.)

THIS work may be divided into two sections: (1) the descriptions of the cocoons, nests, &c., of the commoner kinds of Russian spiders; and (2) the conclusions respecting the evolution of instincts and the classification of the species, to be drawn from the data thus established.

Wagner recognises four kinds of silken structures—namely, the snare, the retreat, the nest, and the cocoon. About the first of these but little is said. The remaining three, however, are discussed in considerable detail, and to the question as to whether these structures are of great taxonomic value, M. Wagner gives an unhesitating and most positive affirmative reply. It is unfortunately impossible within the limits of a short notice to criticise

closely his arguments; but that they are worthy of the deepest attention, will be realised by all arachnologists who are acquainted with M. Wagner's previous works.

Perhaps the highest praise that can be bestowed upon this work, is to say that, even when stripped of its theories, it quite reaches the high standard of excellence attained by M. Wagner's previous papers, and that the great value of the theoretical part lies in the fact that



the key to all problems is sought in the hypothesis of evolution by means of Natural Selection.

The memoir is admirably illustrated with ten lithographed plates, of which eight are coloured, and, in addition, with two hundred and fifty-two diagrams in the text. The figure we here select for reproduction, to give an indication of the nature of the rest, represents the female of *Ocyale mirabilis* carrying her cocoon.

R. I. P.

Elementary Practical Chemistry, Inorganic and Organic.

By J. T. Hewitt, M.A., D.Sc., Ph.D., F.C.S., and F. G. Pope. Pp. 42. (London: Whittaker and Co.)

ALTHOUGH the authors of this small book have confined themselves to such parts of elementary qualitative analysis as find a place in Stage I. of the Science and Art Department Syllabus, neither in general plan nor in details of treatment does the book possess any educational advantage over its many competitors. A mere recital of reactions cannot be considered as "Elementary Practical Chemistry." Surely it is possible to present even the array of facts utilised in analysis in such a manner as to comply with the fundamental requirements necessary to be fulfilled by all educational works designed for young students of science. The production of compilations of the present type will probably cease to exist when the new regulations for Organised Science Schools come into force. We may then, perhaps, look for the production of really philosophical text-books arranged on sound educational lines, and yet calculated to minimise the very real difficulties encountered by the beginner. Putting aside these fundamental considerations, it is only just to say that the authors have brought together a strictly limited set of reactions with few positive inaccuracies.

How to Live in Tropical Africa. By J. Murray, M.D. Pp. 252. (London: George Philip and Son, 1895.)

So far as literary merit is concerned, this is a poor book. The text is disjointed, it is too full of unnecessary quotations, and there is too much tautology. But if only the subject-matter is considered, the verdict is that the book is a trustworthy guide to tropical hygiene, and a useful manual on the cause, prevention, and cure of malarial fevers. The importance of such a handy volume to emigrants and visitors to Africa can hardly be overstated. And as the book is the outcome of medical experience, it possesses exceptional value.

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LETTERS TO THE EDITOR.

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The Liquefaction of Gases.

PROF. OLSZEWSKI's letter in NATURE of January 10 is a more serious matter than a claim for priority. The letter charges Prof. Dewar with allowing the impression to go abroad that he has carried out much original research into the methods of liquefying the more permanent gases, and the properties of the liquids produced; whereas, according to Prof. Olszewski, most of Prof. Dewar's experiments have been merely repetitions of work done by others.

In his brief communication to NATURE (January 10), Prof. Dewar has been too modest either to defend himself or to meet his opponent. Fortunately, he makes one definite statement:—"A reference to the *Proceedings* of the Royal Institution between the years 1878 and 1893 will be sufficient to remove the suggestion that the apparatus I use has been copied from the *Cracovie Bulletin* of 1890."

I have followed Prof. Dewar's recommendation, and made references to the *Proceedings* of the Royal Institution. In his lecture at the Royal Institution on June 13, 1884 (*Proc. R. I.*, xi. 148), Prof. Dewar refers to Messrs. Olszewski and Wroblewski as having "recently made such a splendid success in the production and maintenance of low temperature." He describes and figures an apparatus which is a slightly modified form of that of the Polish professors, which in turn was derived from the apparatus of Cailletet; and he says: "Provided a supply of liquid ethylene can be had, there is no difficulty in repeating all the experiments of the Russian observers." No claim is made here to originality in the essentials of the apparatus, nor in the experiments performed. The apparatus referred to by Prof. Dewar in his lecture of June, 1884, was used by Prof. Olszewski in 1883, and was improved by him in 1884; in 1887 the apparatus was made capable of liquefying oxygen and other gases in considerable quantities at the ordinary atmospheric pressure (see Olszewski, *Phil. Mag.* February 1895, 189-190). In 1890 the apparatus was so improved that from 30 to 100 c.c. of liquid oxygen could be produced by it (see Olszewski, *Phil. Mag.* February 1895, 192-193). Prof. Olszewski states (NATURE, January 10) that a description of this improved apparatus was sent to Prof. Dewar. A year after this, on June 26, 1891, Prof. Dewar delivered a discourse on Faraday's work at the Royal Institution. The published abstract of this lecture (*Proc. R. I.* xiii. 481) contains a photograph of the pumps and engines used in the laboratory of the Royal Institution, and a photograph of the arrangement of the apparatus on the lecture table; but it is impossible to make out the details of the apparatus from these photographs. So far as can be judged from the *Proceedings* of the Royal Institution, Prof. Dewar did not show large quantities of liquid oxygen, nitrogen, or air in his lectures until June 10, 1892, when he placed before his audience a pint of liquid oxygen. Two years before this Prof. Olszewski had obtained 100 c.c. of liquid oxygen, and he tells us in his letter to NATURE (January 10) that 200 c.c. of this liquid were prepared and exhibited by him in July 1891. A pint is undoubtedly more than 200 c.c., but unless one does something with the larger quantity which cannot be done equally well with the smaller, nothing is gained by conducting the manufacture on the large scale.

I can find no other mention of the apparatus used at the Royal Institution for liquefying large quantities of gases. There is indeed no accurate description in the *Proceedings* of that Institution of the apparatus used by Prof. Dewar. If Prof. Dewar has made marked improvements in any essential parts of Prof. Olszewski's apparatus, why has he not published an accurate description of these improvements in some recognised scientific journal?

A reference to the *Proceedings* of the Royal Institution is then sufficient, not to remove, but to strengthen, "the suggestion that the apparatus I [Prof. Dewar] use, has been copied from the *Cracovie Bulletin* of 1890," or at least that it has been borrowed from descriptions of apparatus devised by Prof. Olszewski.